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ABSTRACT

A study examined the classroom behaviors of prenatally drug-exposed children and assessed the effectiveness of instructional strategies used by their classroom teachers. Subjects, 13 current and former classroom teachers of 6 medically documented prenatally exposed children between the ages of 4 and 10, completed a two-part survey. The researchers, both professors of education, also responded to the survey items following classroom observations. Findings were discussed with medical and educational specialists. Results indicated that: (1) prenatal drug exposure may affect a student's movement patterns, work habits, and attitude; (2) individual work emerged as the most effective instructional strategy, although other grouping formats may be used successfully; and (3) these students need a highly-structured environment with allowances for individual choice. Findings suggest that the question is not whether these children can learn to read, but rather can teachers recognize these students' abilities and facilitate their progress. (Contains 18 references and 5 tables of data. The survey instrument is attached.) (Author/RS)

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PRENATALLY DRUG-EXPOSED CHILDREN IN THE CLASSROOM: IDENTIFYING BEHAVIORAL CHARACTERISTICS AND INSTRUCTIONAL STRATEGIES FOR LITERACY DEVELOPMENT

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ABSTRACT

This study examines the classroom behaviors of prenatally drug-exposed children and assesses the effectiveness of instructional strategies utilized by their classroom teachers. Findings of a two-part survey completed by current and former teachers of identified children and by classroom observers, were discussed with medical and educational specialists. Part I of the survey's results indicate prenatal drug exposure may effect a student's movement patterns, work habits, and attitude. From among the survey's instructional strategies evaluated in Part II, individual work emerged as most effective, although other grouping formats may be used successfully. Also suggested was the need for a highly-structured environment with allowances for individual choice.

INTRODUCTION

The image of the prenatally drug-exposed newborn is clear--small head, low birthweight, tremulous movement (Brodkin, 1992; Fackelmann, 1989; Gittler & McPherson, 1990; Householder, Hatcher, Burns, & Chasnoff, 1982; Howze & Howze, 1989; Langone, 1988; Lumsden, 1990; Rist, 1990; Toufexis, 1991). Patterns of behavior at birth, including irritability or lethargy (Greer, 1990; Gregorchik, 1992;

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Rist, 1990; Tyler, 1992), also have been described throughout the literature. Yet, research on the extent to which prenatally drug-exposed children retain these characteristics into and throughout their school-age years, and how the child's ability to learn to read is affected, is relatively scant.

The nascent status of crack-cocaine abuse, the first victims of which currently are infiltrating our primary classrooms, is an apparent reason for the dearth of classroom research. In addition, research in this area is adversely effected by the difficulties associated with the identification of prenatally drug-exposed children. Tests to detect the presence of drugs in newborns are neither reliable nor consistently employed. Self reports by new mothers are believed to be underreported, and the amount, time, and type of exposure are difficult or impossible to determine (Brodkin, 1992; Gittler, 1990; Tyler, 1992).

Researchers also recognize the inseparable effects of post-natal medical and environmental complications. In addition to ongoing physical problems such as visual and auditory impairments, respiratory problems, and poor motor functioning (Tyler, 1992), many prenatally drug-exposed

children face a childhood of poverty, deprivation, and in some cases, parents who continue to abuse drugs (Brodkin, 1992; Coltin, 1980; Howze & Howze, 1989; Rist, 1990, Tyler, 1992).

Although the long-term effects of prenatal drug exposure have not been documented (Van-Dyke, 1990), classroom teachers in the primary grades are reporting an increasing number of suspected cases, and are requesting assistance in meeting the needs of these children who challenge their patience and transcend their teaching expertise. This study was designed in response to such requests which have been directed toward the researchers by classroom and reading teachers in school systems in Virginia and North Carolina. The research goals of this study were

1. To identify classroom behaviors of children who were prenatally exposed to drugs, and
2. To identify successful reading instructional strategies for these children.

METHOD

SUBJECTS

Although a number of suspected cases of prenatal drug-exposure exist in the geographic area of this study, only

medically documented cases were solicited; six were identified. The subjects, between the ages of four and ten, ranged from preschool to grade four.

INSTRUMENTATION

Items for a two-part survey (Appendix) were gleaned from the literature and workshops on prenatal drug-exposure, conferences with the subjects' classroom teachers, and observations by the researchers. Part I of the survey listed behavior characteristics which respondents rated as frequently, sometimes, or infrequently observed. Part II listed teaching strategies which respondents rated as successful or unsuccessful. Space for comments was provided.

PROCEDURES

All current and former reading and classroom teachers of the identified children were requested to complete the survey anonymously. Thirteen surveys were returned.

The researchers, both professors of education, also responded to the survey items following classroom observations. Each identified child was observed twice--once by each researcher--on separate days but in typical classroom situations. The observations, each of

which lasting approximately 60 minutes, were conducted by the researchers between January 28 and May 12, l992. By the deadline date of May 21, l992, twenty-five surveys (13 by classsroom teachers and 12 by observers) had been returned. After responses were compiled and analyzed, the findings were discussed with medical and educational specialists.

RESULTS

The responses of the twelve observer and thirteen teacher surveys were compiled separately, then compared and contrasted. In order to differentiate between the relative absence or presence of each behavior or successful instructional method, the three levels of responses, (1. frequently observed or successful; 2. sometimes observed or sometimes successful; and 3. infrequently observed or unsuccessful) were collapsed into two levels (1. frequently or sometimes observed or successful; and 2. infrequently observed or unsuccessful). As a result, responses were classified into the following categories:

1. A. Classroom behaviors frequently or sometimes observed by classroom teachers
   B. Classroom behaviors frequently or sometimes

observed by the researchers (Table I)

2. A. Classroom behaviors infrequently observed by classroom teachers

   B. Classroom behaviors infrequently observed by the researchers (Table 2)

3. A. Instructional strategies considered successful by classroom teachers

   B. Instructional strategies considered successful by the researchers (Table 3)

4. A. Instructional strategies considered unsuccessful by classroom teachers

   B. Instructional strategies considered unsuccessful by the researchers (Table 4)

Only the most prevalent classroom behavior characteristics present and not present in the children's behavior, and the most successful and unsuccessful classroom instructional methods (those identified by more than 50% of teachers and observers) are listed in the tables.

Table 1 Classroom Behaviors Frequently or Sometimes Observed by Classroom Teachers and Researchers

A. Classroom Teachers' Responses

Items receiving frequency rating of 100%

* 1. wiggles
* 2. has to be prodded to get things done
* 3. makes negative comments

Items receiving frequency rating of 85%

* 1. is easily distracted in class
* 2. seeks attention

Items receiving frequency rating of 75%

* 1. lacks initiative
* 2. engages in social interaction with peers
* 3. gives correct responses to teacher's questions
* 4. appears well cared for (health needs, dressed appropriately, etc.)
5. works inaccurately

Items receiving frequency rating of 70%

1. is highly interested in objects
* 2. has difficulty during transition time
* 3. lacks skills related to follow-through activities
* 4. walks around room
* 5. talks out of turn
* 6. is difficult to control
7. works slowly
8. is aggressive
9. is suspicious of others

Items receiving frequency rating of 61%

* 1. has trouble following directions

2. cries
3. exhibits "normal" emotions similar to other children in your classroom
4. blends in with peers socially
* 5. is interested in class work

Items receiving frequency rating of 54%
* 1. is highly interested in people and objects
2. is highly interested in people
3. uses good verbal expression
* 4. gets involved in school projects

B. Researchers' Responses

Items receiving frequency rating of 100%
* 1. has difficulty during class transition
* 2. lacks skills related to follow-through activities
* 3. engages in social interaction with peers

Items receiving frequency rating of 91%
* 1. wiggles
* 2. has trouble following directions
* 3. lacks initiative
4. is attentive in class
* 5. is easily distracted in class
* 6. gives correct responses to teacher's questions

Items receiving frequency rating of 83%
* 1. is highly interested in people and objects
* 2. talks out of turn
* 3. is difficult to control
* 4. is interested in classwork
5. generally retrieves informaton learned in previous lessons to use in current lessons (at about the same level of difficulty as it is for the rest of the class)
6. is withdrawn from others
* 7. has to be prodded to get things done
* 8. makes negative comments

Items receiving frequency rating of 75%
* 1. appears well cared for
* 2. gets involved in school projects
* 3. seeks attention

Items receiving frequency rating of 65%

* 1. walks around room
2. blends in with peers academically

Items receiving frequency rating of 58%

1. demonstrates an external locus of control
2. utilizes analytical thinking abilities

(*Behaviors denoted by an asterisk were observed by both teachers and researchers.)

Although classroom teachers generally describe identified children as inattentive, excessively active, and unproductive, they also report that these children get involved in school prejects, are interested in classwork and give correct responses to teachers' questions. Indication of this ability to perform verbally recurs both positively (engages in social interactions with peers; blends in with peers socially; and, uses good verbal skills) and negatively (makes negative comments; seeks attention; talks out of turn). Similar behaviors were recorded by the researchers, although ten instances of withdrawal from others also were noted.

Table 2 Classroom Behaviors Infrequently Observed by Classroom Teachers and Researchers

A. Classroom Teachers' Responses

Items receiving frequency rating of 100%

* I. is organized

Items receiving frequency rating of 85%

I. utilizes analytical thinking abilities

Items receiving frequency rating of 75%

I. synthesizes info to draw conclusions
2. generally retrieves info learned in previous lessons to use in current lessons (at about the same level of difficulty as it is for the rest of the class)

Items receiving frequency rating of 70%

* 1. takes initiative
2. blends in with peers academically

Items receiving frequency rating of 61%

* 1. settles down and quickly begins working on an assignment

Items receiving frequency rating of 54%

1. parents express interest in child's academic work
2. easily adapts to the class schedule and schedule changes
3. is attentive in class
* 4. makes eye contact with teacher

B. Researchers' Responses

Items receiving frequency rating of 75%

1. cries
2. blends in with peers socially

Items receiving frequency rating of 65%

* 1. makes eye contact with teacher
* 2. takes initiative

Items receiving frequency rating of 58%

* 1. settles down and quickly begins working on an assignment
  2. uses good verbal expression
* 3. is organized

(*Items infrequently observed by teachers and researchers are denoted by an asterisk.)

An interesting paradox surfaces when teachers (83%) follow their assertion that identified children "give correct responses to questions" (Table IA) with the statement that the students neither synthesize information to draw conclusions nor retrieve information learned in previous lessons to use in current lessons. Teachers also note an absence of analytical thinking abilities. By contrast, researchers ranked informaton retrieval and analytical thinking ability as a frequent behavior.

Table 3 Instructional Strategies Deemed Successful by Classroom Teachers and Researchers

A. Classroom Teachers' Response

Items receiving frequency rating of 100%

* 1. individual work

Items receiving frequency rating of 92%

* 1. small group work

Items receiving frequency rating of 85%

* 1. manipulative materials (tracing, touching, etc.)

Items receiving frequency rating of 75%

1. library books
* 2. class discussion
3. oral reading
4. teacher modeling
* 5. highly structured schedule

Items receiving frequency rating of 70%

* 1. flexibility in freedom of movement and noise making in class
2. library visits
3. time out
* 4. cooperative learning groups
* 5. "think time" for responding to a question

Items receiving frequency rating of 61%

* I. whole class work

Items receiving frequency rating of 54%

* 1. strict rules concerning students' classroom movement and noise in class
2. computer lessons/games
* 3. highly structured curriculum

B. Researchers' Responses

Items receiving frequency rating of 91%
* 1. highly structured schedule
* 2. highly structured curriculum

Items receiving frequency rating of 83%
* 1. flexibility in freedom of movement and noise making in class
* 2. individual work

Items receiving frequency rating of 75%
* 1. class discussion
* 2. small group work

Items receiving frequency rating of 65%
* 1. manipulative materials (tracing, toughing, etc.)

Items receiving frequency rating of 58%
* 1. cooperative learning groups
2. lecture
* 3. "think time" for responding to a question
* 4. strict rules concerning students' classroom movement and noise in class
* 5. whole class work

(*Items denoted with an asterisk were observed by both teachers and researchers)

Although all instructional group sizes are deemed potentially beneficial by teachers and observers (75-100%), a progression in success rate from whole-class to small-group to individual work is noted. The fact that both groups identified the use of manipulative materials as an effective instructional strategy supports or perhaps stems from the students' high level of interest in objects (Table I). Both groups noted a need for rules and structure, as well as freedom of choices in the classroom.

Table 4 Instructional Strategies Deemed Unsuccessful by Classroom Teachers and Researchers

A. Classroom Teachers' Responses

Items receiving frequency rating of 85%
1. extensive questioning

Items receiving frequency rating of 70%
1. computer writing

B. Researchers' Responses

There were no items receiving high frequency ratings.

DISCUSSION

The image of the school-age child who was exposed to illicit drugs prenatally is less clear than that of the newborn. Neither teacher or observer noted physical characteristics such as a small head or low body weight. In fact, these children generally were physically larger than their classmates (none had been retained) and of normal proportions. Unrelated to the tremors noted at birth (pediatrician, 1992), wiggling behavior was the behavior noted most frequently by the combined groups of teachers and researchers (96%) (Tables I and 2). Other characteristics

which received frequency ratings greater than 90% by the combined groups included

has to be prodded to get things done (92%), and

makes negative comments (92%).

Survey respondents (76%) decried the supposition that parents of drug-exposed children do not care adequately for their children, yet they reported that these parents do not become involved in their children's schoolwork. Sixty percent of the respondents supported the observation that prenatally drug-exposed children avoid eye contact with adults (in this case, the teacher), yet they reported that students engage successfully in social interactions with their peers. Although respondents (72%) indicated that identified children do become involved in school projects, they reported that these children walk around the room (68%), fail to take initiative (80%), and have difficulty settling down and beginning work on assignments (56%). Although researchers and classroom teachers agreed on most survey items, there were several areas of disagreement, as listed in Table 5.

Table 5 The following high-frequency (50-100%) behavior characteristics were items of disagreement between researhers and teachers: (P = Present, NP = Not Present).

Researchers	/Teachers	
P	/ NP	1. generally retrieves info learned in previous lessons to use in current lessons (at about the same level of difficulty as it is for the rest of the class)
P	/ NP	2. blends in with peers academically
P	/ NP	3. utilizes analytical thinking abilities
NP	/ P	4. uses good verbal expression
P	/ NP	5. is attentive in class
NP	/ P	6. cries
NP	/ P	7. blends in with peers socially

Five of the seven differences noted were concerning academics. The researchers observed four positive academic functionings that teachers did not observe. The teachers observed one positive academic functioning that observers did not. Thus, the researchers saw more positive academic performances than did teachers. Differences between the researchers' and the teachers' survey responses were discussed with Dr. Frank Wickers, Clinic Psychologist; Dr. Shirley Mayhew, Educational Consultant, Child Development Clinic--Southside; a pediatrician, who preferred not to be identified; and, a teacher of handicapped children. Wickers attributed these disagreements to differences in terminology

and the researchers' limited observation time. He explained that these children typically demonstrate a wide variation in functioning throughout the day, thereby affecting the outcome of short-term observations. Mayhew felt that these areas of disagreement generaly were the result of differences in how members of the two groups interpreted students' behavior. She explained that classroom teachers typically have developed clear curricular expectations, and deviations from expected results are interpreted from this perspective. The teacher of handicapped children agreed that the length of the researchers' observations affected the results of their survey, explaining that many children behave in a manner that is different from their normal behavior when a visitor is present. She added that interpretation of student behavior is also a factor, as observers may be in a position to be more objective.

Terminology and curriculum expectation differences also were believed by the teacher to be contributing factors. When the two educational specialists and the psychologist were questioned concerning the students' eye aversion, neither Wickers nor Mayhew felt that teachers or observers could easily identify this behavior without prior knowledge

of the characteristic. Both suggested that teachers might best identify the behavior during one-on-one instruction. Wichers added that differences in learning styles could contribute to overt behaviors of eye aversion, as auditory learners typically look at their teachers less frequently than visual learners. The teacher of handicapped children agreed that unless the child was being observed during small-group work, in which distractions were minimal, such behavior could be recognized only through repeated observations. Although two specialists recognized a slight chance of misdiagnosis, none felt that teachers gererally interpret eye aversion as a symptom of other conditions such as ADD (attention deficit dysfunction).

A pediatrician responded to questions concerning the physical size and body proportions of the subjects by explaining that the amount, type, and time of prenatal drug abuse determines whether the baby's head size is affected. Children whose mothers abuse cocaine during the first trimester of pregnancy, for example, are at high risk of suffering from irreversible cranial impairment. The subjects involved in this study apparently were not exposed to drugs until later in their development.

Overall opinions of both groups (teachers and researchers) concerning effective instructional strategies were less polar than those concerning behavior characteristics. While individual work ranked highest among instructional strategies by combined teacher and observer groups, whole-group work, think time, and strict rules of conduct followed with frequency rates of over 50%.

IMPLICATIONS AND FURTHER RESEARCH SUGGESTIONS

Additional research is needed to test the following identified behavioral characteristics and successful instructional methods implicated in this study:

Teachers will need extra patience coupled with strict classroom structure and rules to encourage and interact with identified children who possess negative attitudes and disruptive behavior.

Extra efforts will be needed by schools to get identified children's parents involved in their child's classroom and school work.

Teachers ned to give identified children ample think time to put their thoughts together to respond to discussion and questions in class.

Identified students appear to have academic abilities that are going unnoticed; hence, more ways of recognizing and developing these abilities need to be sought (perhaps in small group work.)

Because identified students appear to interact well with their peers, opportunities for them to work

in small groups need to be provided.

In conjunction with the above implications of this study, further research on the items below is warranted:

What effect does the students' eye-contact avoidance have on teachers' assessment of student performance?

What are additional reasons for disagreements between teachers' and researchers' responses as listed in Table V?

What is the relationship between the use of think time (rated as a highly effective strategy) and the students' ability to think analytically (can the student think at the same level as other students, but need additional time to organize thoughts)?

How can teachers capitalize upon students' verbal and social strengths to maximize their performance in all areas?

Do prenatally drug-exposed children generally prefer auditory and kinesthetic learning styles over the visual mode?

SUMMARY

This seminal study of prenatally drug-exposed children and instructional strategies that teachers use with them answers few questions but raises many. The results are encouraging. The children identified for this study are learning to relate to literature and to their peers. The study suggests that the question is not whether or not these children can learn to read; but rather, how do we as teachers best

recognize their abilities and facilitate their progress?

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APPENDIX

SURVEY

Please respond to the following for descriptions of your student(s) that has (have) been identified (please do not include any children that are suspects--only include those that have been identified) as a child(ren) whose mother(s) abused illegal drugs during pregnancy. Mark your responses by placing the appropriate number to the left of each behavior listed:

l--frequently
2--sometime
3--infrequently

General classroom behavior of this child (or children if you have taught more than one)

--wiggles

--is highly interested in objects
--is highly interested in people
--has trouble following directions
--has difficulty during transition time
--is suspicious of others
--lacks initiative
--lacks skills related to follow through activities
--demonstrates an external locus of control
--highly interested in people and objects
--walks around room
--talks out of turn
--is difficult to control
--cries
--makes eye contact with teacher
--exhibits "normal" emotions similar to other children in your classroom
--engages in social interaction with peers
--blends in with peers socially
--blends in with peers academically
--is attentive in class
--is easily distracted in class
--gives correct responses to teacher's questions
--utilizes analytical thinking abilities
--synthesizes info to draw conclusions
--settles down and quickly begins working on an assignment
--is interested in class work
--uses good verbal expression
--has good written expression abilities
--works rapidly or slowly (please circle appropriate one) and accurately or inacurately (please circle)
--generally retrieves info learned in previous lessons to use in current lessons is about the same level of difficulty as it is for the rest of the class
--is withdrawn from others
--easily adapts to the class schedule and schedule changes
--appears well cared for (health needs, dressed appropriately, etc.)
--parents express interest in child's academic work
--is organized
--takes initiative
--has to be prodded to get things done
--is aggressive
--gets involved in school projects
--makes negative comments
--seeks attention

Teaching Methods You Use With This Child

Please mark the following in the left margin with the appropriate number:

1--successful method
2--sometimes a successful method
3--insuccessful method

--cooperative learning groups
--lecture
--class discussion
--written expression projects
--oral reading
--silent reading
--library visits
--library books
--"think time" for responding to a question
--extensive questioning
--tape recorder
--manipulative meterials (tracing, toughing, etc.)
--time out
--flexibility in freedom of movement and noise making in class
--strict rules concerning student's classroom movement and noise in class
--computer lessons/games
--computer writing
--teacher modeling
--highly or loosely (circle one) structured schedule
--highly or loosely (circle one) structured curriculum
--small group work
--individual work
--whole class work

Other: